Volunteer Lake Assessment Program Individual Lake Reports

WINNEPOCKET, LAKE, WEBSTER, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,728	**Max. Depth (m):**	20.4	**Flushing Rate (yr^{-1}):**	0.6
Surface Area (Ac.):	227	**Mean Depth (m):**	5.8	**P Retention Coef:**	0.73
Shore Length (m):	5,000	**Volume (m^3):**	5,315,500	**Elevation (ft):**	452

TROPHIC CLASSIFICATION

Year	Trophic class
1982	OLIGOTROPHIC
1998	OLIGOTROPHIC

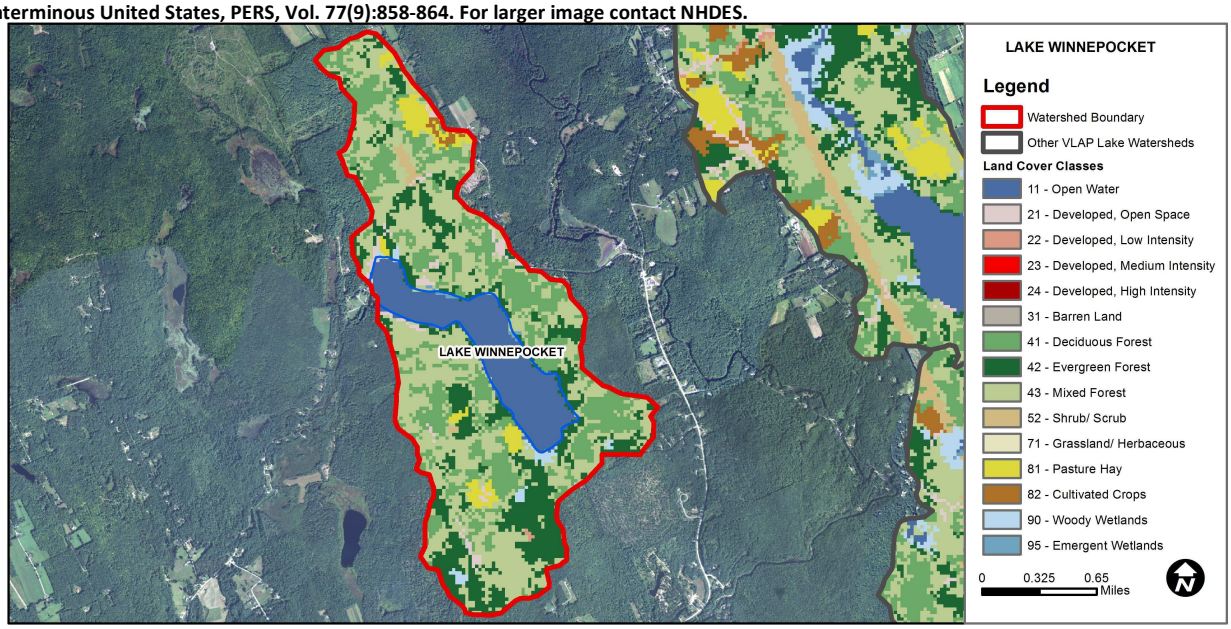
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	The calculated median is from 5 or more samples and is > indicator and the chlorophyll a indicator is exceeded.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	The calculated median is from 5 or more samples and is > indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	13.1	Barren Land	0	Grassland/Herbaceous	0.01
Developed-Open Space	1.82	Deciduous Forest	22.29	Pasture Hay	3.36
Developed-Low Intensity	0.09	Evergreen Forest	19.05	Cultivated Crops	0.38
Developed-Medium Intensity	0	Mixed Forest	37.97	Woody Wetlands	0.97
Developed-High Intensity	0	Shrub-Scrub	0.65	Emergent Wetlands	0.22

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Winnepocket Lake, Webster

2014 Data Summary

Observations and Recommendations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels remained stable from June to August and average levels were low and less than the state median. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Deep spot, nearshore and tributary conductivity levels remained low and approximately equal to the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic (upper water layer) conductivity since monitoring began.
- **E. coli:** E. coli levels at all stations were low and much less than state standards for public beaches and surface waters.
- **Total Phosphorus:** Deep spot, Baston Pt., Dawe Pt., Outlet, and West Wind Village phosphorus levels were very low in June and August. Epilimnetic phosphorus levels were much less than the state median and historical trend analysis indicates relatively stable phosphorus levels since monitoring began. Boxlet Inlet phosphorus levels were slightly elevated in June and upstream Boxlet Inlet 2 levels were low in June. A beaver dam and wetland may be influencing phosphorus levels in the Inlet.
- **Transparency:** Transparency was very good and remained stable from June to August. Transparency improved from 2013 and was much better than the state median. Historical trend analysis indicates stable transparency since monitoring began.
- **Turbidity:** Deep spot, nearshore and tributary stations all experienced low turbidity. June turbidities were slightly higher due to pollen floating in the water column, but were not elevated.
- **pH:** Epilimnetic and metalimnetic (middle water layer) pH levels were within the desirable range 6.5—8.0 units. Hypolimnetic (lower water layer) pH levels were less than desirable in June and historically fluctuate below 6.5 units. Historical trend analysis indicates stable epilimnetic phosphorus since monitoring began.
- **Recommended Actions:** Overall, water quality was good in 2014. However, phosphorus and chlorophyll levels have fluctuated in the past. The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff in the watershed. Educate lake and watershed residents on ways to reduce stormwater runoff from their properties and to utilize only phosphate free fertilizers when necessary. DES' "NH Homeowner's Guide to Stormwater Management" is a great resource. The new Soak Up the Rain NH initiative through DES is another great resource for assistance with managing stormwater runoff. You can learn more about Soak up the Rain NH at www.soaknh.org. Keep up the great work!

Table 1. 2014 Average Water Quality Data for LAKE WINNEPOCKET

Station Name	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	6.7	2.91	41.6		3	6.75	6.52	0.60	6.93
Metalimnion			42.2		5			0.55	6.80
Hypolimnion			41.3		5			0.47	6.71
Baston Point			42.4	10	3			0.55	7.01
Boxlet Inlet			45.5	10	10			0.75	7.06
Boxlet Inlet 2			40.8	10	6			0.76	7.05
Dawe Point			42.3	10	4			0.68	6.95
Outlet			42.4	10	4			0.50	7.00
West Wind Village			42.3	10	3			0.48	7.04

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Improving	Data significantly decreasing.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
pH (epilimnion)	Stable	Trend not significant; data show low variability.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.